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**ESTIMATES OF POPULATION AND HOUSING FOR
ALAMEDA COUNTY, CITIES, AND PLACES
AS OF JANUARY 1, 1978
(Alameda County Population Estimating Model Output)**

The first estimates from the new Population Estimating Model have recently been produced for Alameda County. The results of this first run indicate a County population of 1,100,200 for January 1, 1978 compared to 1,071,446 in April 1, 1970. This is an increase of 28,754 people and indicates a very slow growth rate of 0.3 percent per year.

While the population was growing at 0.3 percent per year, the number of housing units increased from 379,766 in 1970 to 432,338 in 1978 for an increase of 52,572 or 1.5 percent per year. This is five times the rate of growth of the population.

An explanation of the Model, how it works and what it produces, can be found in a separate paper titled, "Population Estimating Model" by Alameda County Planning Department, August 1978.

The period between 1970 and 1978 was a dynamic one in Alameda County even though there was a slow growth rate for the County as a whole.

The Central Metropolitan Planning Unit and the Eden Planning Unit both had losses of population of about five percent from 1970 to 1978 while the other two Planning Units, Washington and the Livermore-Amador Valley, gained 29 and 37 percent respectively.

The decline of population in the Central Metropolitan Planning Unit would have been significantly larger than it was except for the growth in the cities of Alameda, Albany and Emeryville. The City of Oakland has been losing population at least since 1960 and Berkeley since 1970. How long these cities will continue to lose and how much population they will lose is unknown. There are some signs that the migration to the suburbs may be slowing down as housing costs in the central cities become more competitive and as some neighborhoods become rehabilitated.

The loss of population from the Eden Planning Unit represents a new phenomenon for this area. Both of the cities and all of the unincorporated communities experienced population losses between 1970 and 1978 ranging from 2 percent for Hayward to 13 percent for San Lorenzo. All of the communities in this area are aging relative to the remainder of South County. One of the reasons for the loss of population may be lack of suitable housing for young families. The price of existing housing is high relative to Fremont and Livermore and the housing is older.

The fastest growing area in the Washington Planning Unit between 1970 and 1978 was Union City with a growth rate of 10.4 per year. While Union City grew the fastest on a percentage basis, Fremont grew the most on a numerical basis from 100,869 in 1970 to 121,600 in 1978 for a gain of 20,700.

The Livermore-Amador Valley was the other growth area in the County between 1970 and 1978. The City of Pleasanton had the largest gain from 18,328 in 1970 to 34,700 in 1978 for an increase of 16,400 or 89 percent. Livermore, the other city in the Valley, went from 37,703 to 50,400 for an increase of 12,700 or 34 percent. The unincorporated community of Dublin decreased in population about 500 from 15,041 to 14,500 for a loss of 4 percent. Losses such as this were common throughout the County in areas that were built up with little room for expansion such as Dublin, Castro Valley, San Leandro, Hayward and the cities in the Central Metropolitan

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Planning Unit.

A phenomenon which has been noted throughout the State and Nation is the rate of household formations which have been several times the rate of population growth. In Alameda County the ratio has been about 5 to 1 the past eight years. Demographers explain that this is the result of the so-called "Baby Boom" children of the post World War II era reaching the age of household formation as well as the general affluence in the society with two wage earners being common.

Much of the increase of housing units in the Central Metropolitan Planning Unit was due to filling up of some of the last remaining land available for residential development. For example, the start of the Bay Farm Island development in Alameda, Albany Hill in Albany, and Watergate in Emeryville. The City of Oakland had a gain of nearly 3,000 housing units, much of this due to the conversion or demolition of single-family units being replaced with multiple units. There was a loss of about 500 single-family units and a gain of 3,200 multiple units.

Household formations in the Eden Planning Unit occurred at about the same rate as in the County as a whole. The City of Hayward gained 6,000 units or 20 percent while the City of San Leandro gained 2,600 units or 11 percent. The increase in Hayward was split nearly evenly between single and multiple units while the increase in San Leandro was due mostly to multiple by a ratio of 3 to 1.

While the Central Metropolitan Planning Unit gained 8,000 housing units and the Eden Planning Unit gained 11,000, the Washington Planning Unit gained 22,000 units. This represented a growth of 58 percent from 38,000 in 1970 to 60,000 in 1978. Two-thirds of the increase was single-family units while one-third was multiples. Union City and Fremont were the large gainers while Newark continues to grow at a more moderate pace.

The Livermore-Amador Valley Planning Unit continues to be dominated by single family units as 8,500 of the 11,000 units added between 1970 and 1978 were single family. Household formations grow at an annual rate of nearly 8.9 percent in the City of Pleasanton and 3.7 percent in the City of Livermore. It should be noted that the ratio between the growth in household formations and the growth in population is nearly 1 to 1 in this area. This may be due to the relative newness of the area thereby reducing the out-migration to a minimum while the in-migrants are predominantly established or maturing families. This concept is reinforced by school enrollment data which indicates the lower grades increasing at a slower rate than the upper grades. Based on enrollment data for 1970 and 1977 - the latest available - the grade K-8 enrollment increased by 2.2 percent while the grade 9-12 enrollment increased by 45.0 percent. While this phenomenon occurs in other parts of Alameda County, it is much more pronounced in the Livermore Valley.

Note that apparent losses of housing units in some unincorporated areas may be due to annexations and/or census enumeration errors.

Alameda County Planning Department
August 1978

POPULATION ESTIMATING MODEL

Introduction

Past estimates by Alameda County Planning Department were developed for cities and unincorporated areas of the County based on changes in the housing stock. The new procedures enable the Department to develop population and housing statistics by census tract with updated household size and occupancy rate factors.

Although the estimates and the computer model were produced by the County, the project has been a joint venture of the Planning Department, Census Statistical Areas Committee and the cities in the County. The Alameda County School Department provided school enrollment data and Pacific Gas and Electric Company and the City of Alameda Department of Electricity provided residential electric meter data.

Methodology

The methodology involves gathering data on the number of housing units added to the housing stock since the last estimate, either as completions or building permits. This data is obtained from each of the cities in the County by type of structure for each census tract within their jurisdiction. For cities that do not have housing data by census tract, a list of addresses is used. The address list is run against the County's Geographic Base File and the Bureau of the Census UNIMATCH to attach geo codes to each address.

After the changes to the housing stock have been fed into the computer, an updated housing stock report is produced which has the detailed housing data by census tract county-wide. Changes in the residential population can be affected by changes in the occupancy rate.

Occupancy rates are estimated for each city and unincorporated area based on the residential electric meter data from Pacific Gas and Electric Company and the City of Alameda, Bureau of Electricity. The occupancy rates are not calculated directly, but are derived by applying an occupancy-rate-adjustment factor to the base occupancy rate, which is from either the latest census for the area or the previous year's estimate.

The next step is to determine household size. It has been recognized for a number of years that average household size is changing. There has been a downward trend in average household size in Alameda County for at least the past eighteen years. In order to keep current on this change, it became necessary to examine symptomatic indicators of change unless data from a recent census were available.

After considerable experimentation, it was discovered that there is a close correlation between household size and the percentage of the population under 17 years of age. Some population estimates do not normally give an age breakdown and since there would not be a base population in any case, it was decided to use school enrollment data as an indicator of change in average household size. School enrollment data was not used in isolation but was related to the number of occupied housing units.



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As the number of households goes up while the population remains fixed, average household size decreases. School enrollment is used as a measure of "stability" of the population. The percent that school enrollment is of occupied housing units has been graphed so that a change in this percentage represents a change in household size which can be determined from the graph.

The updated housing stock report, the revised occupancy rates and the current household size factors are the major parameters of the new estimates. These, together with updated group quarters data, are fed into the computer to develop the new estimates of population and housing by census tract.

The Model

An explanation of the methodology is not complete without a description of the computer model. It is divided into four sub-systems. A description of each of the sub-systems with input and responses produced, if any, for each should lead to an understanding of the model.

Geo-Sub-System

The geo-sub-system received housing data by address, runs this against the Geographic Base File (GBF) and UNIMATCH and produces a report with the appropriate census tract designations attached to each address. It also produces a report of non-matched records for these addresses that were outside the range of the GBF and/or for those which a valid match cannot be made based on the table of planning area codes. The latter is a description of each of the planning areas by census tract or block and is put into the geo-file prior to application of the model.

Edit-Sub-System

This sub-system receives the pre-aggregated housing unit data by census tract, the updated group quarters counts, and records that should be deleted from the old base file. One of the inputs to this sub-system is known as an initialization record. This can be used to establish a new base where there has been a special census or decennial census. Other records input to this sub-system are accepted as changes to the previous base. Each of these input records is run through an edit procedure before going on to the next sub-system.

House Update Sub-System

The third portion of the model is the house update sub-system which simply produces the updated housing stock report without any additional input. The updated housing report is necessary to determine the adjustment factors to be used for occupancy rate and household size.

Base Sub-System

After the occupancy rate and household size adjustment factors have been calculated, they are fed into the model to produce the new population and housing estimates. This is called the base sub-system because these new estimates now become the base for the following estimate. The base sub-system produces three reports: (1) the audit report which contains all of the input data including the old base, all by type of structure for each census tract or portion thereof; (2) a

summary report of population and housing by city and planning area; and
(3) a census tract summary of population and housing units.

Conclusion

The model can be run at any time to produce small area estimates of population and housing. However, it is assumed that it will be run just once each year in January. Summaries of the population and housing units will be published by city and unincorporated area and by census tract after the annual run. Other data from the model can be published, such as household size, vacancy rates, changes in multiple vs. single family units, as funding becomes available.

Alameda County Planning Department
August 1978

JANUARY 1, 1978 POPULATION ESTIMATES FOR ALAMEDA
COUNTY, PLANNING UNITS, CITIES AND UNINCORPORATED
AREAS WITH COMPARISONS TO APRIL 1, 1970

AREA	JANUARY 1, 1978 ESTIMATES	APRIL 1, 1970 CENSUS	DIFFERENCE	
			NUMBER	PERCENT
Alameda County				
Total Incorporated	1,100,200	1,071,446	28,754	2.7
Total Unincorporated	973,300	936,312	36,988	4.0
	126,900	135,134	-8,234	-6.1
Central Metropolitan Planning Unit	548,500	575,779	-27,279	-4.7
Alameda	75,500	70,968	4,532	6.4
Albany	15,800	15,561	239	1.5
Berkeley	110,000	114,091	-4,091	-3.6
Emeryville	4,500	2,681	1,819	67.9
Oakland	332,000*	361,561	-29,561	-8.2
Piedmont	10,700	10,917	-217	-2.0
Eden Planning Unit	260,500	274,787	-14,287	-5.2
Castro Valley	44,400	45,560	-1,160	-2.6
Hayward (City)	91,200	93,058	-1,858	-2.0
Hayward (Unincorporated)	14,500	15,511	-1,011	-6.5
San Leandro (City)	64,400	68,698	-4,298	-6.3
San Leandro (Unincorporated)	1,500	2,176	-676	-31.1
Ashland	13,700	14,810	-1,110	-7.5
Cherryland	8,900	9,969	-1,069	-10.7
San Lorenzo	21,500	24,633	-3,133	-12.7
RRA-1	250	205	45	22.0
RRA-2	150	167	-17	-10.2
Washington Planning Unit	184,600	143,225	41,375	28.9
Fremont	121,600	100,869	20,731	20.6
Newark	30,000	27,153	2,847	10.5
Union City (City)	32,500	14,724	17,776	120.7
Union City (Unincorporated)	400	391	9	2.3
RRA-3	100	88	12	13.6
Livermore-Amador Valley Planning Unit	106,600	77,655	28,945	37.3
Livermore (City)	50,400	37,703	12,697	33.7
Livermore (Unincorporated)	2,000	1,886	114	6.0
Pleasanton (City)	34,700	18,328	16,372	89.3
Pleasanton (Unincorporated)	1,600	1,721	-171	-9.9
Dublin	14,500	15,041	-541	-3.6
RRA-4	1,000	959	91	9.5
RRA-5	2,400	2,017	383	19.0

*Provisional, April 1977 base data may be changed by U.S. Bureau of the Census

RRA= Rural Recreation Area

Alameda County Planning Department
August 1978

JANURAY 1, 1978 SUMMARY OF HOUSING UNITS BY
CITY OR PLACE WITH COMPARISONS TO APRIL 1, 1970

AREA	January 1, 1978 ¹			April 1, 1970 ²			Difference	
	Total	Single	Multiple	Total	Single	Multiple	Number	Percent
Alameda County	432,338	261,444	170,894	379,766	233,518	146,248	52,572	13.8
Total Incorp.	386,607	226,200	160,407	337,487	198,873	138,614	49,120	14.6
Total Unincorp.	45,731	35,244	10,487	42,279	34,645	7,634	3,452	8.2
Central Metro- politan Planning Unit	237,668	112,518	125,150	229,411	111,890	117,521	8,257	3.6
Alameda	27,282	11,786	15,496	24,689	10,856	13,833	2,593	10.5
Albany	7,014	4,066	2,948	5,924	3,970	1,954	1,090	18.4
Berkeley	47,882	20,703	27,179	47,365	20,701	26,664	517	1.1
Emeryville	2,441	478	1,963	1,194	493	701	1,247	104.4
Oakland	149,356	71,891	77,465	146,615	72,361	74,254	2,741	1.9
Piedmont	3,693	3,594	99	3,624	3,509	115	69	1.9
Peninsula Planning Unit	100,997	72,354	28,643	89,642	68,355	21,287	11,355	12.7
Castro Valley	17,059	13,193	3,866	14,795	12,100	2,695	2,264	15.3
Hayward (City)	34,461	23,715	10,746	28,680	20,595	8,085	5,781	20.2
Hayward (Uninc.)	4,953	3,726	1,227	4,748	3,783	965	205	4.3
San Leandro (City)	26,994	19,043	7,951	24,418	18,358	6,060	2,576	10.6
San Leandro (Uninc.)	496	336	160	497	358	139	-1	-0.2
Ashland	5,948	3,316	2,632	5,516	3,391	2,125	432	7.8
Cherryland	3,748	2,265	1,483	3,778	2,954	824	-30	-0.8
San Lorenzo	7,211	6,633	578	7,104	6,710	394	107	1.5
RRA-1	77	77	--	55	55	--	22	40.0
RRA-2	50	50	--	51	51	--	-1	-2.0
Washington Planning Unit	60,078	47,947	12,131	38,065	33,207	4,858	22,013	57.8
Fremont	40,379	31,012	9,367	27,305	23,551	3,754	13,074	47.9
Newark	8,741	8,046	695	6,801	6,008	793	1,940	28.5
Union City (City)	10,908	8,842	2,066	3,913	3,606	307	6,995	178.8
Union City (Unin.)	15	15	--	15	11	4	---	--
RRA-3	35	32	3	31	31	--	4	12.9
Livermore-Amador Valley Planning Unit	33,595	28,625	4,970	22,648	20,066	2,582	10,947	48.3
Livermore (City)	16,531	13,724	2,807	11,431	9,973	1,458	5,100	44.6
Livermore (Unin.)	753	708	45	639	589	50	114	17.8
Pleasanton (City)	10,925	9,300	1,625	5,528	4,892	636	5,397	97.6
Pleasanton (Unin.)	548	539	9	564	533	31	-16	-2.8
Dublin	4,124	3,644	480	3,847	3,456	391	277	7.2
RRA-4	436	434	2	300	295	5	136	45.3
RRA-5	278	276	2	339	328	11	-61	-18.0

¹/Alameda County Planning Department estimate, June 1978
²/U.S. Bureau of the Census, 1970 Census of Population & Housing, April 1970
 --/Includes Mobilehomes
 --Indicates Zero
 RRA = Rural Recreation Area

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